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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,226	12/14/2000	John A. Trezza	LSC-141J	5664
24222	7590	09/17/2004	EXAMINER	
MAINE & ASMUS 100 MAIN STREET P O BOX 3445 NASHUA, NH 03061-3445			TRAN, DZUNG D	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/737,226

Applicant(s)

TREZZA ET AL.

Examiner

Dzung D Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 02/09/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-8, 10-16 and 19-22 is/are rejected.
- 7) ☒ Claim(s) 3, 9, 17 & 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. In view of the Amendment filed on 07/30/2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "emitter includes a scattering grating" in claim 3, "emitter includes a reflector" in claim 9 must be shown or the feature(s) canceled from the claim(s). It appears that a scattering grating 122 of figure 7 and a reflector 94e of figure 6 are located outside of the emitter 14f. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 6, 10-12, 15, 16, 19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. US patent no. 5,822,475.

Regarding claims 1 and 6, Hirota discloses an optical apparatus on a shared substrate multi-wavelength optical communication system (figure 6, col. 5, lines 63-67) comprising:

a number of emitters (42a) each of which emits radiation at a different wavelength (col. 3, lines 59-61);

a plurality of detectors (42b) each of which senses radiation at a different wavelength corresponding to the radiation from one of said emitters (col. 7, lines 56-59);
and

an optical data bus 20 (same as shared waveguide). Hirota does not specific disclose the shared waveguide includes a scattering medium with dispersive particles.

However Hirota teaches an optical bus 20 that has a transmission layer 21 and optical diffuser 21a as it is shown in figure 6. Therefore, if it not inherent, it would have been obvious that the optical bus of Hirota has the same function as the claimed waveguide that includes a scattering medium with dispersive particles.

As to claim 21, Hirota further teaches a reflective medium for containing scattering radiation (col. 9, lines 1-8).

As to claim 22, Hirota further teaches the shared waveguide is disposed part on one substrate and part on another substrate (figure 6 shows optical bus 20 that is partly attached to first circuit board 40 and partly attached to second circuit board 40).

Regarding claims 10-12, Hirota further discloses emitters 42a and detectors 42b are disposed on a chip and in a generally planar array (figures 3, 4, col. 6, lines 8-13).

Regarding claims 15, 16 and 19, Hirota further discloses an optical bus (same as shared waveguide) is disposed on the integrated circuit chips 41 (figures 3, 4, col. 6, lines 60-67).

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. US patent no. 5,822,475 in view of Heidrich US patent no. 6,061,481.

Regarding claims 4 and 5, Hirota does not disclose a detector includes a filter for selectively passing one of said wavelengths from said emitters and filter includes a Bragg grating. Heidrich discloses an optical wavelength multiplexing system having photodiodes 6', 6'' are connected to a light wavelength selective grating reflector structured as a band-pass filter stop 10', 10'' (col. 10, lines 59-64, col. 11, lines 32-35). At the time the invention was made, it would have been obvious to a person of ordinary

skill in the art to include the teaching of Heidrich in the apparatus of Hirota. One of ordinary skill in the art would have been motivated to do this in order to eliminate the unwanted optical signals such as noise or other unwanted wavelength and reduce cross-talk between the channels.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. US patent no. 5,822,475 in view of Mathews et al. US patent no. 6,288,644.

Regarding claim 20, Hirota does not disclose an opaque barrier for absorbing the radiation. Mathews discloses an opaque barrier is placed between emitter module 252 and detector module 256 (figure 2, col. 7, lines 17-20). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include the teaching of Mathews in the apparatus of Hirota. One of ordinary skill in the art would have been motivated to do this in order reduce cross-talk between the emitter module and detector module (col. 7, lines 17-20).

7. Claims 2, 7, 8, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. US patent no. 5,822,475 in view of Frankel US patent no. 6,096,496.

Regarding claim 2, Hirota does not disclose emitter is a vertical cavity surface emitting laser. Frankel, from the same field of endeavor, discloses a vertical cavity surface emitting laser (VVSEL) (col. 18, lines 7-8, 21-22, col. 28, lines 15-67). At the time the invention was made, it would have been obvious to a person of ordinary skill in

the art to include the teaching of Frankel in the apparatus of Hirota. One of ordinary skill in the art would have been motivated to do this since vertical cavity surface emitting laser offers the advantage of low-cost light sources capable of providing high modulation rates and long transmission distances.

Regarding claims 7 and 8, Frankel further discloses emitter includes an LED (col. 16, lines 25, 51, col. 22, lines 35- 49) or an edge emitting laser (col. 28, 9-10).

Regarding claims 13 and 14, Frankel further discloses the chip is gallium arsenide and silicon chip (col. 14, lines 24-44, col. 22, line 10).

8. Claims 3, 9, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

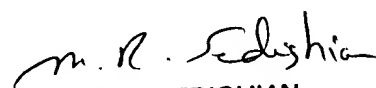
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung Tran whose telephone number is (571) 272-3025.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jason Chan, can be reached on (571) 272-3022.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



**M. R. SEDIGHIAN
PRIMARY EXAMINER**